Micronutrient fortified drink over 18 months had no impact on stunting: a RCT in rural Guatemala

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P15-004-21

Background

- In Guatemala, 47% of children <5y are stunted[1].
- Micronutrient fortified atoles are convenient to distribute, affordable and culturally acceptable.
- Fortified atole is widely used in Guatemalan nutrition/aid programs and showed promising results in ameliorating stunting and iron deficiency when distributed in nurseries[2].

Aim

To test the long-term impact of a micronutrient fortified supplement on stunting rates, zinc and iron status.

Methods

Study design A parallel, open label RCT in rural communities in Retalhuleu, Guatemala in 2013. Allocation 7:3, stratified by age and locality. Trial Registration NCT01643187

Participants Children aged 6-72months with low (-1SD) weight (WAZ), height (HAZ) or weight for height (WHZ) for age

Outcomes Stunting prevalence (HAZ <-2SD), zinc, iron status, anemia.

Intervention given daily over 18 months:

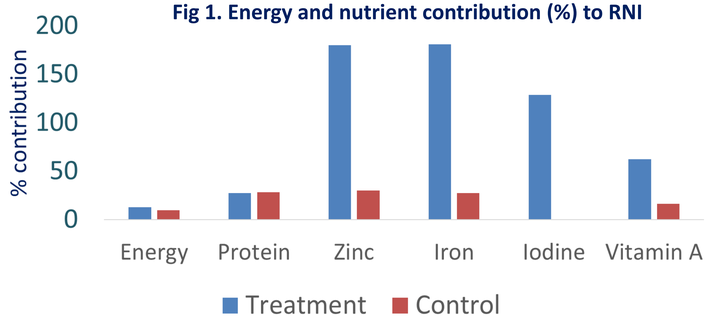
Treatment: corn-soy micronutrient fortified drink (Chispuditos®), 18.75g and 18.7 g sugar boiled in water/day

Control: lactose free milk, 27g of powder/day

Monthly home-visits to observe supplement preparation;

At median 27, 42 and 60 weeks from baseline, bag of supplement weighed and number of days since delivery recorded.

Fig 1. Energy and nutrient contribution (%) to RNI



Results

- 1238 children screened, 971 met criteria. 681 allocated to treatment, 290 to control.

Fig 2. Nutritional status - Prevalence (%) and RR (CI) at baseline and end of trial

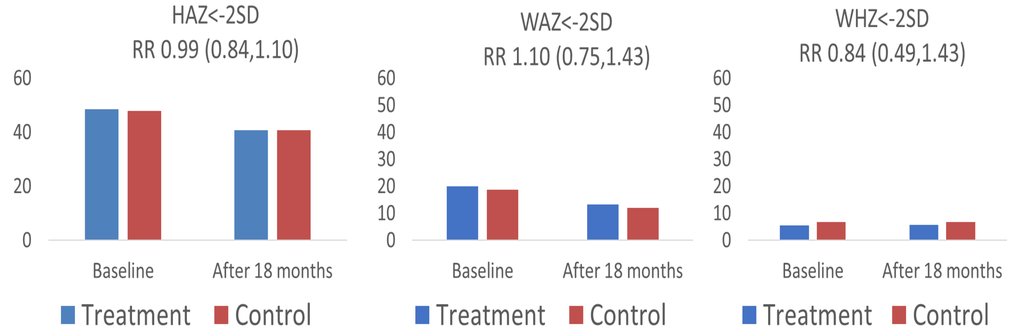
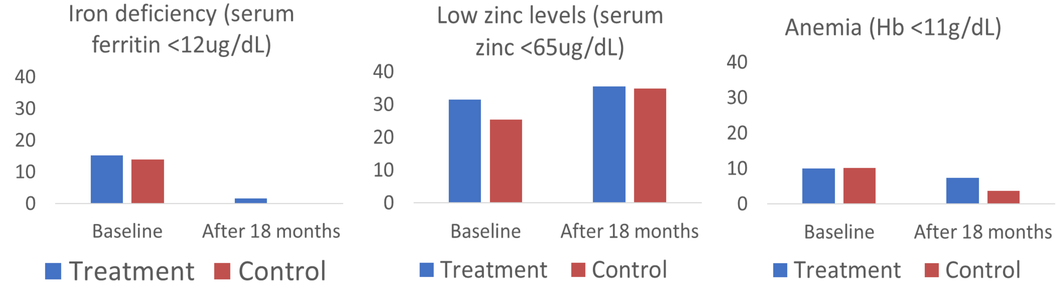


Fig 3. Micronutrient status - Prevalence (%) at baseline and end of trial



What about compliance?

Weight (Full bag – residuum) / number of treatment days → weight per day at visit 1,2,3 → Mean (SD) weight per day = 15.9 (6)g

In intervention arm:

20% consumed <10g → 45% zinc deficient

80% consumed >10g → 33% zinc deficient P, $\chi 2=0.002$

Key Messages

- Long term consumption of micronutrient supplemented atole did not reduce stunting in rural Guatemalan communities
- Zinc and Iron status was not affected by the intervention



Funding

The Mathile Institute for the Advancement of Human Nutrition

References

1.2020 Global Nutrition Report: Action on equity to end Malnutrition. *Development Initiatives*. Retrieved from Bristol, UK

2.Villanueva, L., Palacios, A., Cuy Castellanos, D., & Reinhart, G. (2015). An Atole Fortified with 21 Vitamins and Minerals Improves Nutritional Status of 6 to 72 Month-Old Children in 6 Nurseries in Guatemala City. *The FASEB Journal, 29*(S1), 898.843

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